

Remarks:

Reconsideration of the application is respectfully requested.

Claims 1 - 8 and 10 - 21 are presently pending in the application. Claim 9 was previously canceled. New claims 20 and 21 have been added. As it is believed that the claims were patentable over the cited art in their original form, the claims have not been amended to overcome the references.

In item 3 of the above-identified Office Action, claims 1, 2 and 10 - 19 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U. S. Patent No. 5,983,112 to Kay ("KAY") in view of U. S. Patent No. 6,393,071 to Bourzeix ("BOURZEIX"). In item 4 of the Office Action, claims 3 - 8 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over KAY and BOURZEIX, further in view of U. S. Patent No. 6,314,215 to Shanbhag ("SHANBHAG").

Applicants respectfully traverse the above rejections.

More particularly, Applicants' independent claims require, among other limitations, changing the different carrier frequencies only within one single transmission channel. For example, claims 1 and 11 (as well as, Applicants' new claim 20) recite, among other limitations:

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changing the different carrier frequencies only within one single transmission channel by detuning, with at least one capacitor, an oscillating crystal of a carrier frequency generator. [emphasis added by Applicants]

Similarly, Applicants' independent claims 12 and 16 recite, among other limitations:

a carrier frequency generator for generating different carrier frequencies located only in a single narrowband channel, [emphasis added by Applicants]

Being able to set different carrier frequencies within a single channel, as claimed by Applicants, is advantageous because this permits the use of a low-cost receiver (i.e., one that receives only one transmission channel). However, because of the more broadband construction resulting from required tolerances, low-cost receivers can actually receive and process not only signals at the nominal carrier frequency, but also signals with slightly deviating carrier frequencies. This is described in the instant application, for example, on page 7, lines 8 - 13, which states:

Due to the tolerances, low-cost systems must have a more broadband construction than is actually necessary. As such, the receiver is able to process not only signals at the nominal carrier frequency, but also signals with slightly deviating carrier frequencies (typically +/- 300 ppm) (→ receiver bandwidth).

So, in accordance with the instant invention, in order to change or minimize the effect of interference, a sender can

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change the respective transmission frequencies within a small range. See page 7 of the instant application, lines 15 - 20.

In other words, by changing the transmission frequencies within the range of a low-cost receiver's single transmission channel, the effect of interference can be reduced with no significant effect on the transmission (in particular, reception) parameters, and no substantial impact on the cost of the receiver. See page 6 of the instant application, lines 8 - 16. Because of the pre-existing built in tolerances of the receiver, Applicants' inventive transmission method/device optimally transmits to the existing receiver without modification of the single channel receiver. Thus, a low-cost simplex (one way) radio control system can be realized.

Neither the KAY reference, nor the BOURZEIX reference, teach or suggest generating different carrier frequencies only within a single channel, as required by Applicants' claims.

More particularly, on page 2 of the Office Action, it is alleged:

Kay discloses a radio communication system and method, comprising the steps of repeatedly transmitting a message in different time slots, where second and third transmissions are implemented on different carrier frequencies. See col.2, lines 54-65. The different frequencies are changed only within one

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single transmission channel. See col.1, lines 48-50.
[emphasis added by Applicants]

Applicants respectfully disagree.

Col. 1 of KAY, lines 46 - 51, states:

Aside from contention factors, delay can be occasioned by the phenomena of fading or shadowing. Furthermore, the fading can be either flat or frequency selective.

The published literature evidences previous suggestions for the use of **dynamic channel assignment** in the mobile telephone service on a speech spurt basis. [emphasis added by Applicants]

As such, the Office Action points to a section of KAY that discusses "dynamic channel assignment" and alleges that it discloses Applicants' claimed **different carrier frequencies only within a single channel**. Applicants respectfully disagree.

First, dynamic channel assignment, as disclosed in KAY, is, by definition, a multi-channel system in which the sender and receiver determine in a mutual (two way) communication a desired transmission channel in order to eliminate (narrowband) interference. See page 7 of the instant application, lines 15 - 20. However, the system according to the presently claimed invention does not require an expensive and complex multi-channel system, because according to the present invention, by slightly changing the transmission

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frequency or carrier frequency within one transmission channel
on the side of the sender, no transmission parameters on the
side of the receiver have to be changed, thus making a complex
mutual (two way) communication unnecessary.

Consequently, by suggesting the use of dynamic channel
assignment, KAY fails to teach or suggest Applicants' claimed
invention and, in fact, teaches away from Applicants'
presently claimed invention.

The BOURZEIX reference, cited in the Office Action as
allegedly disclosing at least one capacitor and an oscillating
crystal or a detonable oscillator to generate a plurality of
frequencies, where switches are used to connect one of the
capacitor to an oscillator, does not teach or suggest
Applicants' claimed generating different carrier frequencies
only within a single channel. The SHANBHAG reference, cited
in connection with KAY and BOURZEIX against certain of
Applicants' dependent claims, further does not teach or
suggest, among other limitations of Applicants' claims,
generating different carrier frequencies only within a single
channel.

As such, it is believed that all of Applicants' claims are
patentable over the cited art, alone, or taken in combination.

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Additionally, Applicants' claims relate to, and all claims recite, among other limitations "in a radio access control system for a motor vehicle". However, page 2 of the Office Action states, in part:

The preamble reciting a use in "a radio access control system" is not given patentable weight since it merely calls for a field of use.

Applicant respectfully disagrees. As stated in MPEP § 2111.02, any terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation. As such, elements of the preamble of a claim that are incorporated into the body of the claim, relate to structure and are to be given patentable weight. Applicants' claims all incorporate the radio control system for a vehicle of the preamble into the body of the claim. For example, Applicants independent claims 1 and 11 recite, among other limitations:

wirelessly transmitting, in the radio access control system, a data message containing an access code more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference; [emphasis added by Applicants]

Applicants' claims 12 and 16 recite, among other limitations:

a transmitter modulating data messages containing an access code with said carrier frequencies and wirelessly transmitting the data messages in temporal

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succession in the radio access control system.
[emphasis added by Applicants]

As such, Applicants believe that the radio access control system for a vehicle, recited in the preamble of claims 1, 11, 12 and 16, has been incorporated into the body of the claims; provides structure for those claims (i.e., where is the message transmitted? in the radio access control system!); and needs to be given patentable weight.

Similarly, new claim 20 recites in the body of the claim, among other limitations:

wirelessly transmitting to a receiver in the motor vehicle, a data message containing an access code more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference; and [emphasis added by Applicants]

Such recitation of a receiver in the motor vehicle clearly provides structure to new claim 20, and thus, needs to be given patentable weight. Claim 20 is supported by the specification of the instant application, for example, page 6, lines 8 - 18, which states:

The proposed measure is surprisingly advantageous, particularly in the case of low-cost radio access control systems for motor vehicles because such systems already use low-cost components with high tolerances (for example, crystals and surface wave filters) and, thus, - due to cost rather than for technical reasons - have a relatively broadband configuration. Small deliberate changes to the

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carrier frequency can, therefore, easily be made in such systems with no significant effect on the transmission parameters, or can easily be incorporated in the construction of such systems with no substantial impact on cost. [emphasis added by Applicants]

As such, all of Applicants' claims recite a radio control access system for a vehicle. Contrary to Applicants' claimed invention, KAY and BOURZEIX relate to cellular communication systems for example, according to the GSM-Standard, and not to radio access control systems for vehicles, as required by Applicants' claims.

Additionally, each of Applicants' claims recite, among other limitations, that an access code/data messages are transmitted on different frequencies in temporal succession. As stated in the Preliminary Amendment filed on December 14, 2006, and a previous response, KAY neither teaches, nor suggests Applicants' particularly claimed transmitting in temporal succession. As stated in a previous response, the invention of Kay cannot transmit a message in temporal succession. Looking to FIG. 6 of Kay, and to col. 5, lines 57 to 59, "the subslots which are shaded and labeled 'exclusive slots' cannot be used by the mobile for transmission of its reverse allocation request." (Emphasis added by applicants). This configuration necessarily breaks the succession of data.

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Clearly, Kay does not show wirelessly transmitting an access code or data message more than one time using at least two different carrier frequencies in temporal succession, as recited in claims 1, 11, 12, 16 and 20 of the instant application. However, in the Office Action, the Examiner did not address this failure of KAY, or even mention this claim limitation. The BOURZEIX and SHANBHAG references further do not teach or suggest Applicants' particularly claimed transmitting in temporal succession, and thus cannot supply this absent limitation to KAY. Applicants believe that the present claims are patentable over the cited references, in addition to the reasons cited above, as well as others, because none of the references teach or suggest transmitting in temporal succession.

Further, no patentable weight has been given to Applicants' claim limitation of an "access code". Rather, page 2 of the Office Action states, in part:

Likewise, the content of the transmission as being "access code" is a matter of design choince depending on the field of use.

Applicants respectfully disagree. The term "access code" is a structural limitation of Applicants' claims. As stated on page 1 of the instant application, line 23 - page 2, line 7:

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Thus, in the automotive industry, conventional radio-controlled locking systems, which initially had the importance of a convenience function only (regarded by many car drivers as superfluous), have since become complex systems, through which not only is access gained to the interior of the vehicle, but through which vehicle functions are also controlled. In modern systems, the transfer of an access code via radio carries out user authentication. For the future, it is proposed to transmit user-specific data, which are required in order to control specific functions, along with the access code. [emphasis added by Applicants]

Applicants' claimed access code is a structural limitation of the claims. Further, Applicants' new claim 21 recites:

The method of claim 20, wherein the access code provides access to the motor vehicle.

Clearly, the access code of Applicants' claims is a structural limitation that should be given patentable weight.

In view of the foregoing, it has been shown that the KAY, BOURZEIX and SHANBHAG references fail to teach or suggest all limitations of Applicants' claimed invention, whether taken alone, or in combination.

It is accordingly believed that none of the references, whether taken alone or in any combination, teach or suggest the features of claims 1, 11, 12, 16 and 20. Claims 1, 11, 12, 16 and 20 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable

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as well because they all are ultimately dependent on claims 1,
12, 16 or 20.

In view of the foregoing, reconsideration and allowance of
claims 1 - 8 and 10 - 21 are solicited.

In the event the Examiner should still find any of the claims
to be unpatentable, counsel would appreciate receiving a
telephone call so that, if possible, patentable language can
be worked out.

If an extension of time for this paper is required, petition
for extension is herewith made.

Please charge any fees that might be due with respect to
Sections 1.16 and 1.17 to the Deposit Account of Lerner
Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,



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March 21, 2006

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